

## TUBERCULOSIS AWARENESS AMONG EDUCATED PUBLIC IN TWO CITIES IN TAMILNADU

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### ABSTRACT

A questionnaire on source of information regarding tuberculosis, signs and symptoms, diagnostic methods, treatment duration and personal and community hygiene relating to tuberculosis, was administered to 446 students and employees with an educational status of high school certificate and above.

The main source of information were books and magazines and 86% were aware that the Tuberculosis germ was the causative agent. Symptoms of Tuberculosis such as cough (85%) and loss of weight (74%) were well known. Other symptoms such as chest pain (29%), fever (27%) were less known. Sputum examination as a diagnostic tool was known to 68% while 80% knew about radiograph being used to diagnose the disease. Cough as a method of spread was known to 91%. In this questionnaire the duration of treatment was the least known fact. 28% felt that treatment could be stopped if symptoms disappeared. 16% were aware that the method of sputum disposal was by incineration. The implications are discussed.

### Introduction

Tuberculosis has been declared a "Global emergency" by the World Health Organisation as the magnitude of the problem has risen to appreciable proportions especially after the advent of AIDS.

In India, the District Tuberculosis Programme (DTP) recommends passive case finding which requires patients and chest symptomatics to attend the health facilities on their own initiative to seek medical relief (1). Passive case finding will be successful only if the community is aware of the signs and symptoms of tuberculosis. Various media of mass communication like Television, Radio, Newspapers, Magazines and health education in the form of group educational activities using flash cards, flip charts, films and poster have been used by Governmental as well as non-Governmental organisation such as the Tuberculosis Association of India. However, if these programmers have to be successful, a basic literacy level is an essential prerequisite to enable the community to understand and react favourably to the health education programmes and propaganda through the media.

Several studies have already been undertaken to determine the level of awareness of Tuberculosis amidst segments of community (2-4). These studies showed that 80% of the chest symptomatics and patients have heard of tuberculosis and 75% had taken action, based on verbal information (3). These studies which measured the level of

awareness in a 'Select' group who had symptoms and by virtue of their signs and symptoms may have acquired more knowledge regarding the disease.

We undertook a study to measure the level of awareness among literates in two urban communities of the facts regarding tuberculosis and its management. This study population was chosen since they had better access to information being disseminated regarding tuberculosis. This analysis would help to find out areas of poor understanding and areas that need strengthening in health education.

### Material and Methods

This study was carried out in Madras and Madurai city among college students, bank employees, college lecturers, clerical staff of Accountant General's office, Television Centre, and Social Welfare Board office. Their level of education was of high school certificate and above, including postgraduation. There was no attempt at randomization but the sample analysed appeared to be a fair representative group of the literate population of both cities.

The tool employed for the study was a multiple choice structured computer coded questionnaire which had been previously tested among community health workers. The questionnaire (see appendix) consisted of 21 questions which were segmented under the following headings.

1. Source of information regarding Tuberculosis(TB)
2. Signs and symptoms of TB
3. Diagnostic aids in TB
4. Treatment duration, and
5. Personal and community hygiene relating to TB.

The questions were in English andadequate explanations were offered in Tamil and English as required in the direct filling of the columns in the presence of the questionnaire administrator.

The questionnaire allowed the responder to choose more than one answer and also allowed them to state that they did not know a particular answer. The responses to the questionnaires were then computerised and analysed.

### Results

In all, 446 individuals from Madras and Madurai city of South India participated in this study. This sample had 38% graduates and 33% postgraduates. In all, 500 questionnaires were distributed to which 453 person responded. Seven responses were rejected either because the educational level of. the respondents was less than that prescribed for the study or the questionnaires were incompletely answered.

A total of 446 questionnaires from 103 students and 343 employed personnel were analysed (24 from Doordarshan Kendra Television Station and 319 from Bank and State Govt. Offices). Of these responders, 24(5.2%) were males and 198 (44.4%) were females ; 30.3% were less than 25 years of age, 31% were between 25-35 years, 24.4% between 35-45 years and 13.5% were above 45 years. There were no significant differences relating to educational and/or occupational grades. Thus the data were amalgamated for analysis.

In the questionnaire some of the questions had more than one answer and these questions are dealt in Table 1. Questions that had one specific answer are analysed in Table 2.

### Source of Information

Books and magazines were the main source of information (67.3%); radio and television contribution was mentioned by 65%, health institutions as source of information was given by 36.5%.

Cause of TB: 86% answered that TB germs caused the disease. Lack of proper food was mentioned by 37.7% Smoking as a cause of infection was given as one more cause of disease by 52%. Poor hygiene was also thought to be cause by 44.4%. 4% had no idea what caused the disease.

**TABLE-I**  
**Answers on different aspects of tuberculosis among urban educated subjects**

Number interviewed	446	
Answer (Multiple)	No.	%
<b>1. Source of information</b>		
Books & Magazines	300	67.3
Radio/Television/Movie	292	65.5
Relative friends	179	40.1
Health Instructions	163	36.5
Other TB patients	134	30.0
Others	23	5.2
<b>2. The cause of tuberculosis</b>		
TB germs	384	86.1
Addiction to smoking	232	52.0
Poor hygiene	198	44.4
Lack of proper food	168	37.7
Worries/Godscurse	43	9.6
Overwork	42	9.4
No idea	18	4.0
Fate	6	1.3
<b>3. The symptoms of tuberculosis</b>		
Cough	378	84.4
Loss of Wt/Appetite	328	73.5
Blood spitting	279	62.6
Chest pain	127	28.5
Fever	121	27.1
Tiredness	110	24.7
Breathlessness	86	19.3
Others	5	1.1
<b>4. Methods of diagnosis</b>		
Radiographic examination	356	79.8
Sputum examination	301	67.5
Blood tests	291	65.2
Maltoux	136	30.5
Physical examination	124	27.8
Utie	63	14.1
Others	5	1.1
<b>5. Spread of tuberculosis</b>		
Coughing and spitting	407	91.3
By water	179	40.1
Dust	167	37.4
	120	26.9
Rice	82	13.4
No idea	16	3.6
others	13	2.9
<b>6. Sputum disposal</b>		
By burning sputum	209	48.9
By spitting	176	39.5
No idea	122	27.4
By boiling sputum	111	24.9
Others	17	3.8

TABLE-2

## Answer to awareness questionnaire

Number interviewed	446
<b>Duration of treatment</b>	<b>%</b>
2 months	4.6
6-8 month	17.6
12-18 months	21.3
3 years	6.5
Till symptoms disappear	28.0
No idea	18.4
<b>Precautions to be taken by TB patients</b>	
By covering the mouth	73.0
By burning sputum	15.9
Stop smoking	4.3
Stop drinking	0.2
No idea	
<b>Necessity of nutritious diet</b>	
No	3.6
Yes	87.0
No idea	9.0
<b>Is bed rest essential?</b>	
No	28.0
Yes	58.2
No idea	13.8
<b>Breast feeding of her child by a mother with TB</b>	
No	61.1
Yes	14.3
No idea	24.6

Symptoms of TB: Of the 1434 answers given for symptoms of tuberculosis, 84.8% mentioned cough, 62% blood spitting, 28.5% chest pain and loss of weight by 73.5% and fever in 27% breathlessness 19.3%.

Methods of diagnosing TB: Of the 1276 answers obtained 67.5% mentioned sputum examination, 79.8% mentioned radiographic examination, blood tests, 65.2% and Mantoux, 30.5%.

Spread of infection: Of 984 answers - 91.3% attributed spread of infection to cough and spit, 40% by water, 13.4% felt it was hereditary. Spread was attributed to dust by 37.4%.

Sputum disposal: Of 635 answers given 46.9% felt it to be by burning sputum, and 27.4% said that they had no idea about sputum disposal.

Duration of treatment: In Table 2 the duration of treatment for tuberculosis, precautions to be taken by TB patient and role of diet and bed rest in the day to-day management of TB was summarised. The answers of all the

three groups were amalgamated since there was not much difference in the answers.

Regarding duration of treatment, 28% felt that treatment should be continued till symptoms disappeared; 4.6% for two months, 17.6% six to eight months, 21.3%, 12 to 18 months and 6.5% three years. 18.4% had no idea about duration of treatment.

Preventive methods to be taken by TB patients: 74.4% felt by covering the mouth and 15.9% by burning sputum.

Diet and bed rest: 87% thought nutritious diet to be necessary and nine percent had no idea. 56.2% felt bed rest is essential while treating a TB patient and 13.8% had no idea about bed rest.

Infant feeding: Sixty one percent thought that a mother with TB should not breast-feed the child and 25% had no idea about infant feeding.

### Discussion

There have been a few studies to assess the level of awareness of tuberculosis in the general population(5), and these studies have shown lack of awareness among patients and general population with respect to aetiology, signs and symptoms and management of tuberculosis. These studies measured the awareness among patients of tuberculosis and many of them have stressed ignorance of the disease and its treatment as an important factor for patients failing to complete treatment(3,6). Westaway conducted a study among black TB patients and found that patients had very little knowledge of signs and symptoms of the disease prevention or duration of treatment(2). Knowledge awareness and practise studies done among chest symptomatics in Madras also showed that the knowledge regarding tuberculosis was meagre(3).

The present study was undertaken to find the awareness among educated group in a community who have access to various sources of information and hence, this target group may give us a clear idea regarding areas that are covered by these sources and also areas in health education that need strengthening. In the present study it was found that among educated the source of information appears to be mainly books and magazines and video and television. As against this among chest symptomatics' verbal communication appeared to be the main source of information(3). In the present study, nearly 86% were aware that 'TB germ' is the causative agent. In addition 52% attributed TB to smoking and 44% to poor hygiene. Mathuria found 14% among patients attributing the disease to 'germs', 40% to smoking and 36% to alcohol(2).

Thilakavathi in a study conducted in a large metropolis reported that only eight percent among economically weaker section of the community were aware of the fact that TB

was caused by germs (3). Thus in contrast to these two studies 86% of the literates attributed the disease to germs. This was an encouraging finding.

Though, blood spitting and loss weight were identified as the main symptoms of tuberculosis, whereas chest pain and fever as symptoms were known only to a smaller number (28.5%). It was interesting to note that in a study done by Westaway among TB patients cough as a symptom of TB was known to 89% and chest pain in 35% and haemoptysis to 15%. Geetha Krishnan's report states 55% of literates and 32% illiterates consider haemoptysis as a symptom of TB (5). Thus other than cough, symptoms such as fever, chest pain and haemoptysis are not known very well, both to patients and public.

Regarding diagnosis, 67.5% considered sputum examination as a diagnostic test, whereas 79.8% was of the view that radiographic chest examination was necessary for diagnosis and Mantoux was thought to be a diagnostic test by 30%. In his study, Mathuria reported that 65% of patients knew sputum and radiographic examination as diagnostic aids for TB. In a study done in Netherlands and Finland 91% and 85% of the general population respectively were aware of 'x-ray chest' as a tool in the diagnosis of pulmonary tuberculosis whereas sputum examination as a diagnostic test was less known than 'x-ray chest'. Thus it is felt that this needs greater emphasis in health education among public. Sputum disposal by burning was known to only 40% to 50% of our study subjects. This aspect also needs to be stressed in our health education campaigns. Coughing and spitting were identified as the methods of spread by 91% in the present study population, whereas in Mathuria's report only 49% of patient population felt 'cough' contributed to the spread of the disease. Thus, in our study population, 'cough' as a method of transmission was well known.

As far as the knowledge of duration of treatment is concerned, 5% thought it to be two months, 18%, a six to eight months, 21%, 12 to 18 months, seven percent, three years, 28%, till symptoms disappeared and 13% had no idea. Thus duration of treatment was the least known fact in this population and as such there was no clear-cut idea on treatment in this group. The disheartening feature here is that 28% felt treatment may be discontinued when once symptoms disappear and this might lead to calamitous outcome of treatment with Short Course Chemotherapy when rapid conversion and quick abatement of symptoms are frequently observed. Even among the literates there is

no clear cut knowledge of treatment duration and this needs to be stressed in future health education programmes. Among Mathuria's patients, 37% had no idea about treatment; 40% felt six months to two years and 10% two to three years should be the duration of treatment. Thus there is ample evidence to prove lack of awareness among public regarding the duration of treatment and the need to enhance health education for the public.

Under the item personal and community hygiene, four questions were asked. For the question, what are the precautions to be taken by the TB patient?, 73% answered 'cover the mouth while coughing'. The fact that mouth is to be covered while coughing seems to be well known but 'burning sputum' for disposal is not known and this point also needs emphasis.

To conclude, the educated were found to be aware of the cause and symptoms of tuberculosis and also about diagnostic tools. But they were not aware of duration of treatment and sputum disposal. Thus, this questionnaire showed areas where more efforts need to be made in health education. Though the sample taken here is 'convenience sample' (available on the day of the interview) and assuming the 'literate' to be better informed than illiterates it is felt that book, radio and TV seem to be the main contributing sources regarding symptoms and signs. Nevertheless, we recommend intensive education regarding treatment and treatment-adherence.

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**APPENDIX****Questionnaire on Tuberculosis Awareness**

(Please answer the following questions by entering the appropriate codes in the corresponding box(s). If there is more than one correct answer, please enter as many codes in decreasing order of importance).

1. Age (Completed years): -- 1a. Sex: (1=male, 2=female)
2. Literacy:  
(1=middle school & below, 2=high school, 3=undergraduate, 4=graduate, 5=post graduate)
3. Occupation :  
(1=Govt.servant, 2=self-employed, 3=others)
- 4a. Do you watch programmes on TV/radio ? (1=no, 2=yes)
- 4b. If 'Yes' then have you watched/listened to any programmes on Tuberculosis? (1=no, 2=yes)
- 5a. Have you heard of TB? (1=no, 2=yes)
- 5b. If 'Yes', give the source of information  
(1=Health institution, 2=books/magazines, 3=radio/TV/movie, 4=other TB patients, 5=relatives/friends /neighbours, 6=others  
5 c of "others" please specify.
- 6a. What is the cause of TB?  
(1=TB germs(Tubercle bacilli), 2=lack of proper food, 3=addiction to smoking, 4=overwork, 5=worries, 6=God's curse, 7 = fate, 8 = poor hygiene, 9 = no idea).
- 6b. Any other reasons , please specify
- 7a. What are the symptoms of TB?  
(1=cough, 2=bloodspitting, 3=chestpain, 4=fever, 5=loss of weight, 6=loss of appetite, 7=tiredness, 8=breathlessness, 9=others)
- 7b. If 'others', please specify:
- 8a. What are the methods of diagnosing TB?  
(1=sputum examination, 2=x-ray chest, 3=blood tests, 4=physical examination, 5=Mantoux, 6=urine examination, 7=others)
- 8b. If 'others', please specify
- 9a. How does TB infection spread in community?  
(1=by water, 2=food, 3=coughing & spitting, 4=familial (hereditary), 5=dust, 6=no idea, 7=others)
- 9b. If 'others', please specify
- 10a. How do you think the sputum has to be disposed?  
(1=by burning the sputum, 2=by boiling the sputum, 3=by spitting on the roadside and covering with mud, 4=no idea, 5=others)
- 10b. If 'other', please specify
11. Should the TB patients be treated as  
(1=out patient, 2=in patient, 3=no idea)
12. What is the usual duration for treatment of TB?  
(1=2months, 2=6/8months, 3=12/18months, 4=3years, 5=symptoms disappear, 6=life long, 7=no idea)
- 13a. What precautions are to be undertaken by a TB patient to prevent the spread of infection?  
(1=by covering the mouth with a cloth while coughing,

2=by burning the sputum in a separate container, 3=stop smoking,  
4=stop drinking, 5=no idea, 6=others)

13b. If 'others', please specify

14. Is isolation necessary for treatment of TB patients?

(1=no, 2=yes, 3=no idea)

15. Do you think injections are necessary for treating TB? (1=not necessary, 2=maybe necessary, 3=absolutely necessary,  
4=

16a. If you suspect that somebody in your area has got TB, what will you do?

(1=motivate him to stop smoking, 2=motivate him to attend the nearest health facility to rule out TB, 3=not expose himself to cold, 4=to take good food, 5=stop drinking alcohol, 6=take good rest, 7=others)

16b. If 'others', please specify

17. Do you think the nutritious diet in addition to anti-TB drug is a must in the treatment of TB?

(1=no, 2=yes, 3=no idea)

18. What will happen if TB patients do not take treatment regularly?

(1=death due to TB, 2=risk of infection to others, 3=gets cured, 4=no idea,  
5=nothing happens)

19. In addition to anti TB drugs, is bed rest essential for complete cure of the disease?

(1=no, 2=yes, 3=no idea)

20. If a lady with TB becomes pregnant can she continue treatment?

(1=no, 2=yes, 3=no idea)

21. Can a mother with TB breast feed her child?

(1=no, 2=yes, 3=no idea)